# A National Web Conference on the Use of Health IT to Improve Care Planning and Communication With Aging Adults

**Presented by:**
David H. Gustafson, Ph.D.
Charles Safran, M.D., M.S., FACMI
Kevin Ponto, Ph.D.
Eneida Mendonca, M.D., Ph.D.

**Moderated by:**
Shafa Al-Showk, M.P.H., CHES
Agency for Healthcare Research and Quality

July 17, 2017

# Presenter and Moderator Disclosures

- Welcome and Introductions
- Presentations
- Q&A Session With Presenters
- Instructions for Obtaining CME Credits

**Note:** After today's Webinar, a copy of the slides will be emailed to all participants.

# Agenda

The following presenters and moderator have no financial interests to disclose:

- Kevin Ponto, Ph.D.
- Eneida Mendonca, M.D., Ph.D.
- Shafa Al-Showk, M.P.H., CHES

David H. Gustafson, Ph.D., would like to disclose that he owns stock in CNH Inc., is the principal for David Gustafson and Associates, and is a University of Wisconsin grant recipient.

Charles Safran, M.D., M.S., FACMI, would like to disclose that he is on the board of directors at Intelligent Medical Objects, is a consultant for Cerner, and is a foundation council member for Health on the Net Foundation.

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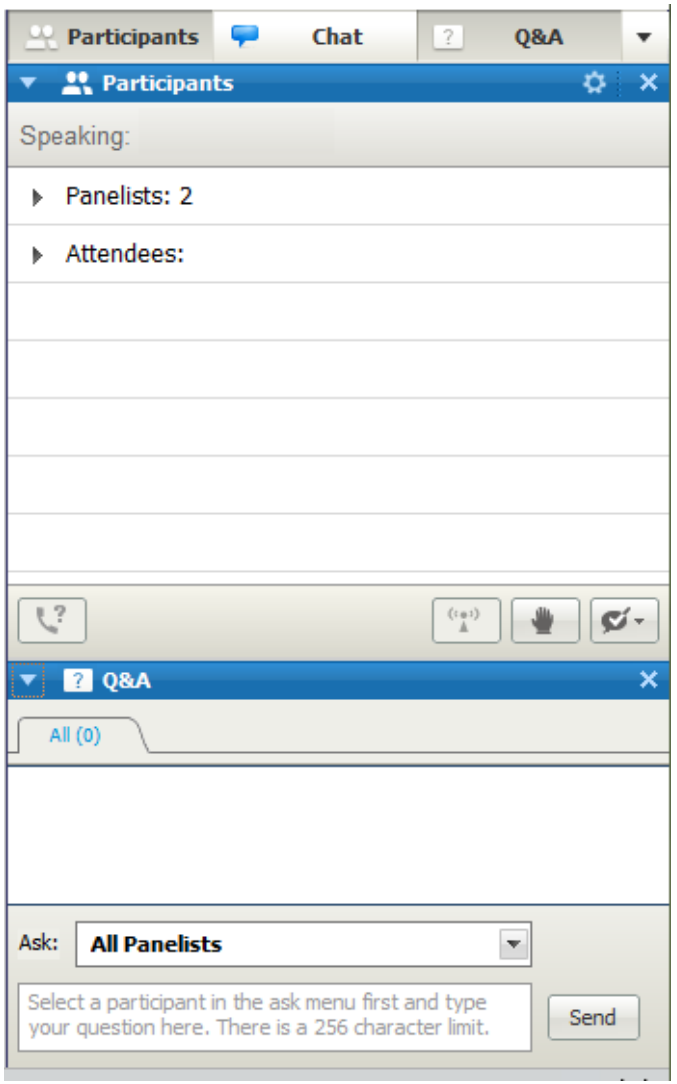
Commercial support was not received for this activity.

# How to Submit a Question

- At any time during the presentation, type your question into the “Q&A” section of your WebEx Q&A panel.
- Please address your questions to “All Panelists” in the drop-down menu.
- Select “Send” to submit your question to the moderator.
- Questions will be read aloud by the moderator.



# Learning Objectives

At the conclusion of this activity, the participant will be able to do the following:

1. Describe the impact of a Web-based information and communication technology system (Elder Tree) aimed at connecting aging adults with family members, caregivers, other aging adults, and community resources on elder independence and quality of life.
2. Describe the development of a family-centered Web-based platform (InfoSAGE) to improve communication, coordination, and collaboration related to health care decisionmaking and care transitions for aging adults and their families.
3. Discuss the benefits of integrating a full-scale 3D model of a home with EHR data for aiding in care planning for aging adults.

# Staying Alive With Elder Tree:
## Design, Use, and Effect of a Computer System for Older Adults

**David H. Gustafson, Ph.D., Director**
**Fiona McTavish, Deputy Director**
**Dhavan Shah, Ph.D., Scientific Director**
**John Lee, Ph.D.**
**Jane Mahoney, M.D.**

**Center for Health Enhancement Systems Studies**

# Staying Alive: The Elder Tree Story

**Milwaukee County**

**Richland County**

Dave Gustafson speaking for many, many other colleagues

**Waukesha County**

Center for Health Enhancement Systems StudieS

WISCONSIN

UNIVERSITY OF WISCONSIN-MADISON

**Major funding from the Agency for Healthcare Research and Quality**

# Agenda

- How we did CBPR?
- What did we produce? (Elder Tree)
- Differences with older adults?
- How did we evaluate it?
- What are we learning?
- New developments
- How are we disseminating?

# Our Job:

**Use CBPR to :**
**keep older adults**
**active and independent,**
**& use technology to do it.**

# Asset-Based Community Development

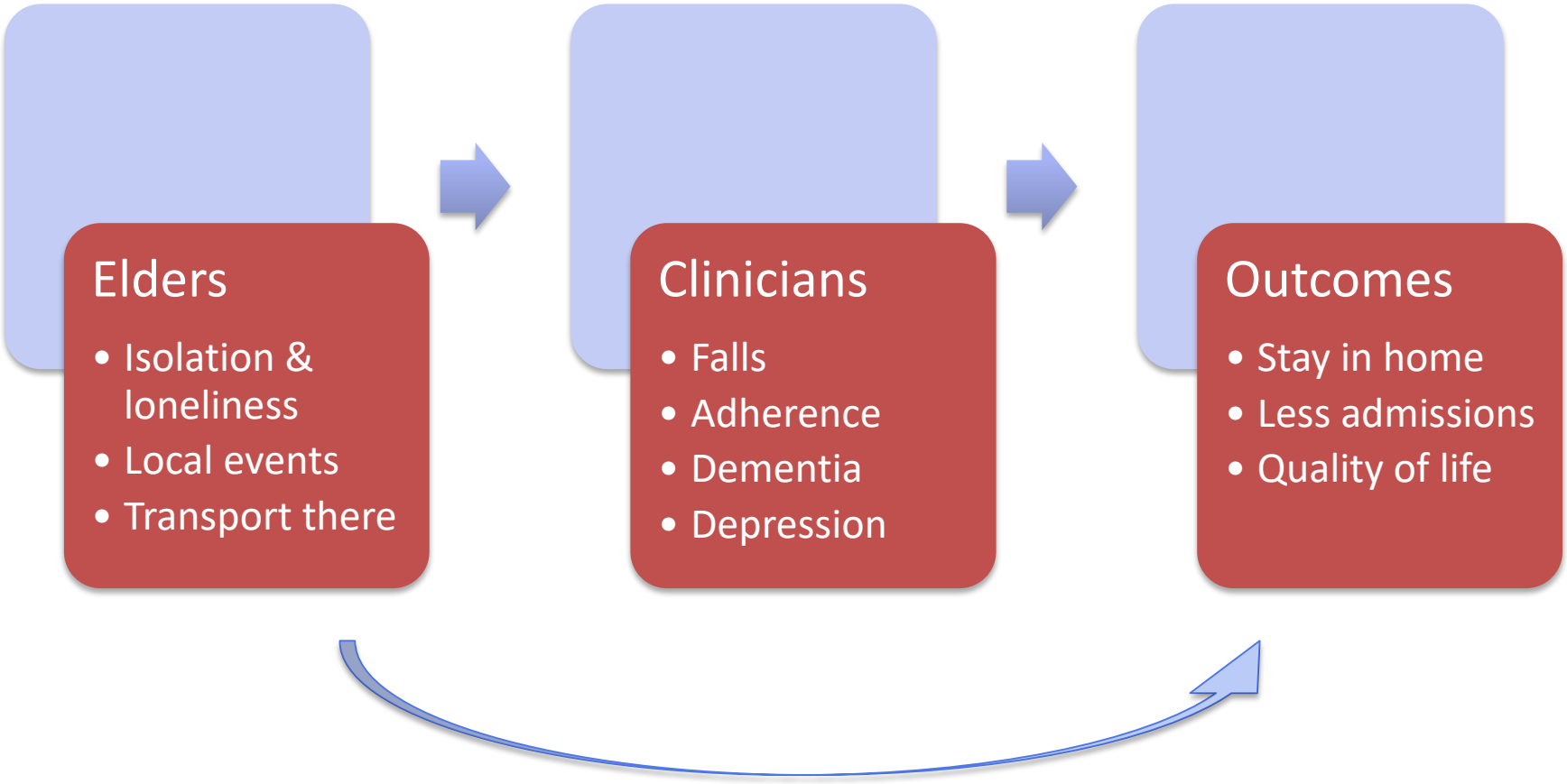
Assets & challenges identified

Associations; not institutions

Strategy team

300 conversations & asset-mapping

# Everyone is right.



# Elder Tree

# Video Here

# Elder Tree Features

## Conversations
- Public Discussion
- Private Messages
- Family and Friends

## Information
- Local Resources
- Bulletin Board
- Active Living WIKI Tips

## Falls Prevention
- Falls Assessment
- Tailored Balance Exercises

## Transportation
- Monitor Driving
- Map Your Trip

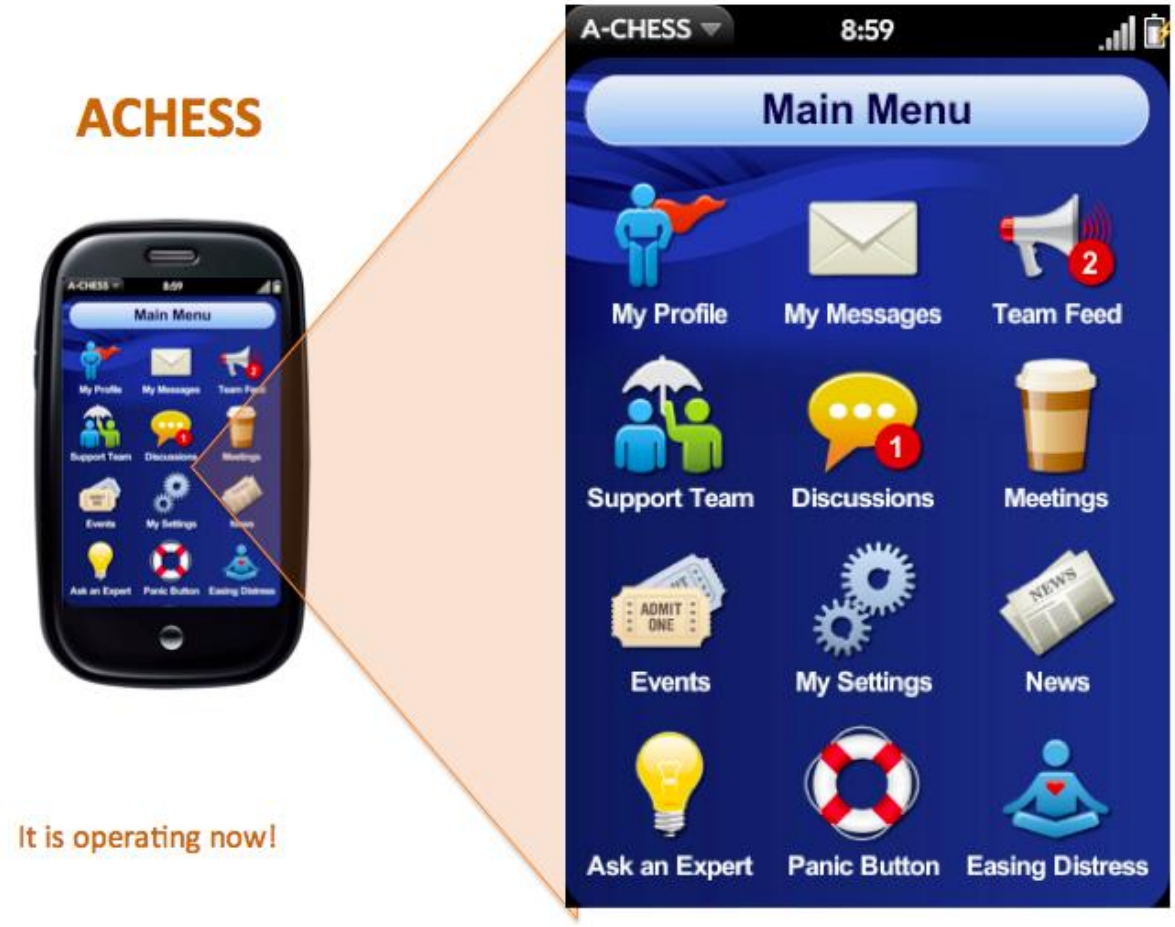
## Personal
- Member Directory
- Games and Ice Breakers
- To-Do List
- My Health Tracker

## For Clinicians (new)
- Clinician Report

# Adaptations for Elderly

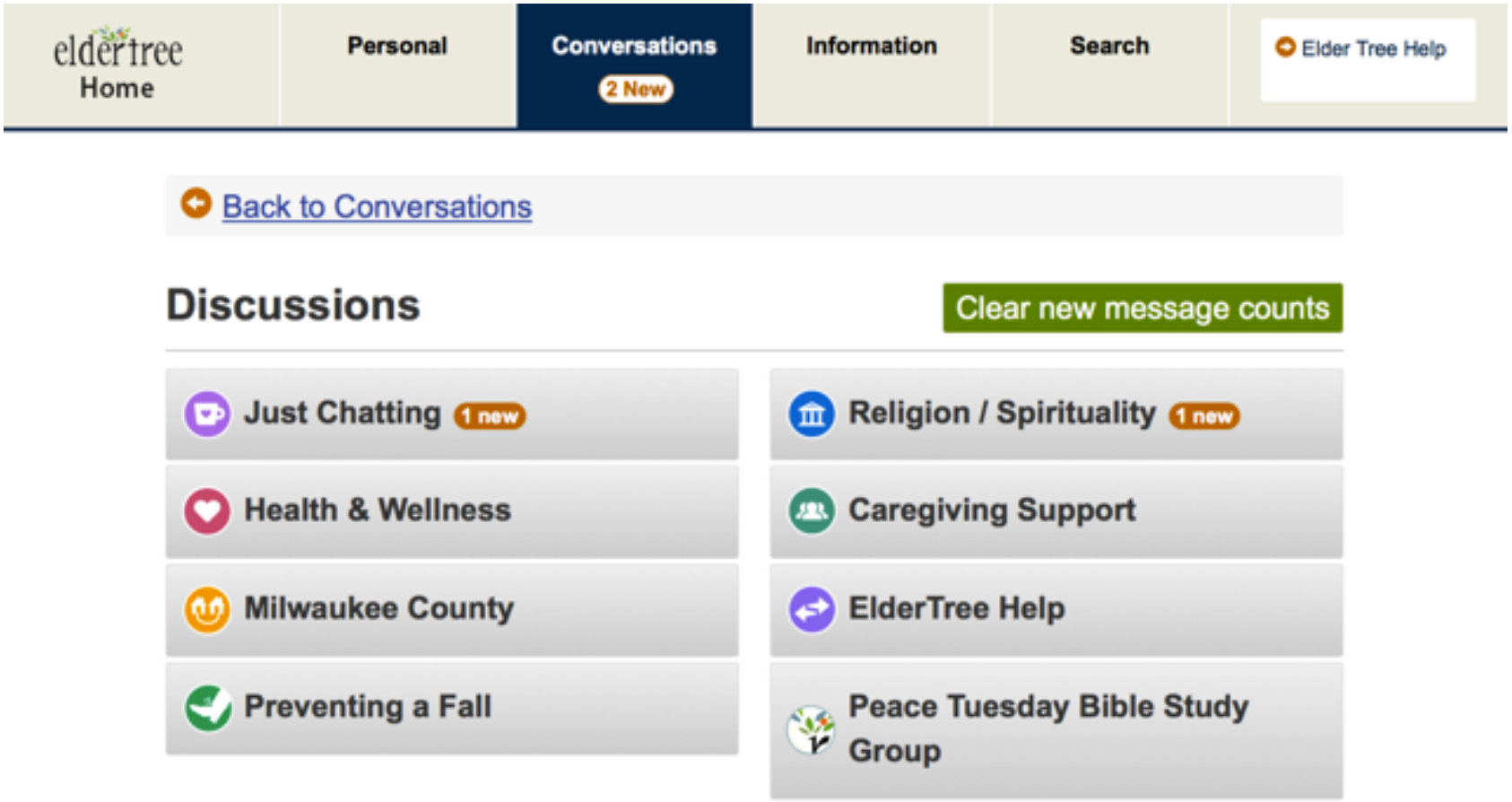
- Meet us where we are (senior centers).
  - Our hands tremble.
  - Coordination diminishes.
  - Our eyes are dimmer.
- So:
  - Large screen; no mouse (touch screen instead)
  - Keep it simple
  - Anytime training
  - Minimal data collection

# Typical CHESS: too complex



# Keep it Simple

eldertree
Home
Personal
Conversations
2 New
Information
Search
Elder Tree Help
Conversations
Private Messages
Public Discussions
Family and Friends
Ask a Coach
Home | Admin | My Profile | Members | About ElderTree | Logout
Need Help with Elder Tree? Call 1-800-480-9223, Monday - Friday 9:00am to 5:00pm


elderTree
Home
Personal
Conversations
2 New
Information
Search
Elder Tree Help
Back to Conversations
Discussions
Clear new message counts
Just Chatting 1 new
Religion / Spirituality 1 new
Health & Wellness
Caregiving Support
Milwaukee County
ElderTree Help
Preventing a Fall
Peace Tuesday Bible Study Group

# Randomized Trial

- 399 older adults
- >100 each from urban, rural, and suburban
- Elder Tree vs. TAU
- Surveys at Pre, 6, 12, and 18 months
- Primary outcome at 12 months

# Eligibility Criteria

Older adults (65+)
≥2 IADL
≥2 risk factors for nursing home admission: falls; caregiver burden; living alone; mood problems; no spouse, children, or siblings; received SNF rehab; ED visits; hospital or home health services

# Results

**Who are the Super- Posters?**

Compiled by Fiona McTavish

# Number of Messages Sent (in 6 months by 135 people)

**6003 messages posted**

**3272 in discussion group**

**2531 private messages**

# Categories

| | | |
|---|---|---|
| **Didn't Post:** | n = 36 | 26.7% |
| (Never wrote message – the lurkers) | | |
| **Low Posters:** | n = 39 | 28.9% |
| (Wrote <1 message per month) | | |
| **Medium Posters:** | n = 33 | 24.4% |
| (Wrote ≥1 but <5 messages per month) | | |
| **Super Posters:** | n = 27 | 20.0% |
| (Wrote ≥6 messages per month) | | |

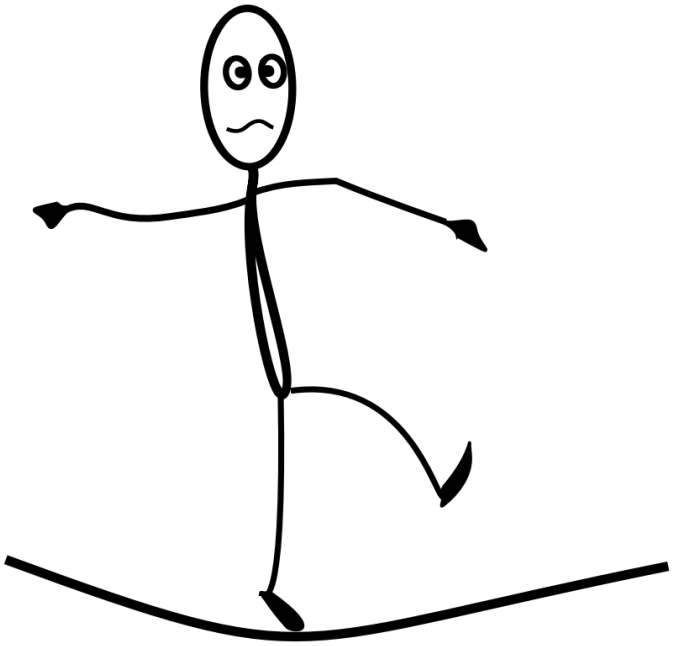
# Live Alone

- Didn't Post: 47.2%
- Low: 48.7%
- Medium: 66.7%
- Super Posters: **88.9%**

# Fell More Than Once in Last 12 Months

| | |
|---|---|
| Didn't Post: | 44.4% |
| Low: | 30.8% |
| Medium: | 27.3% |
| Super Posters: | **66.7%** |

# Found Moving/Walking Around the Home Challenging or Difficult

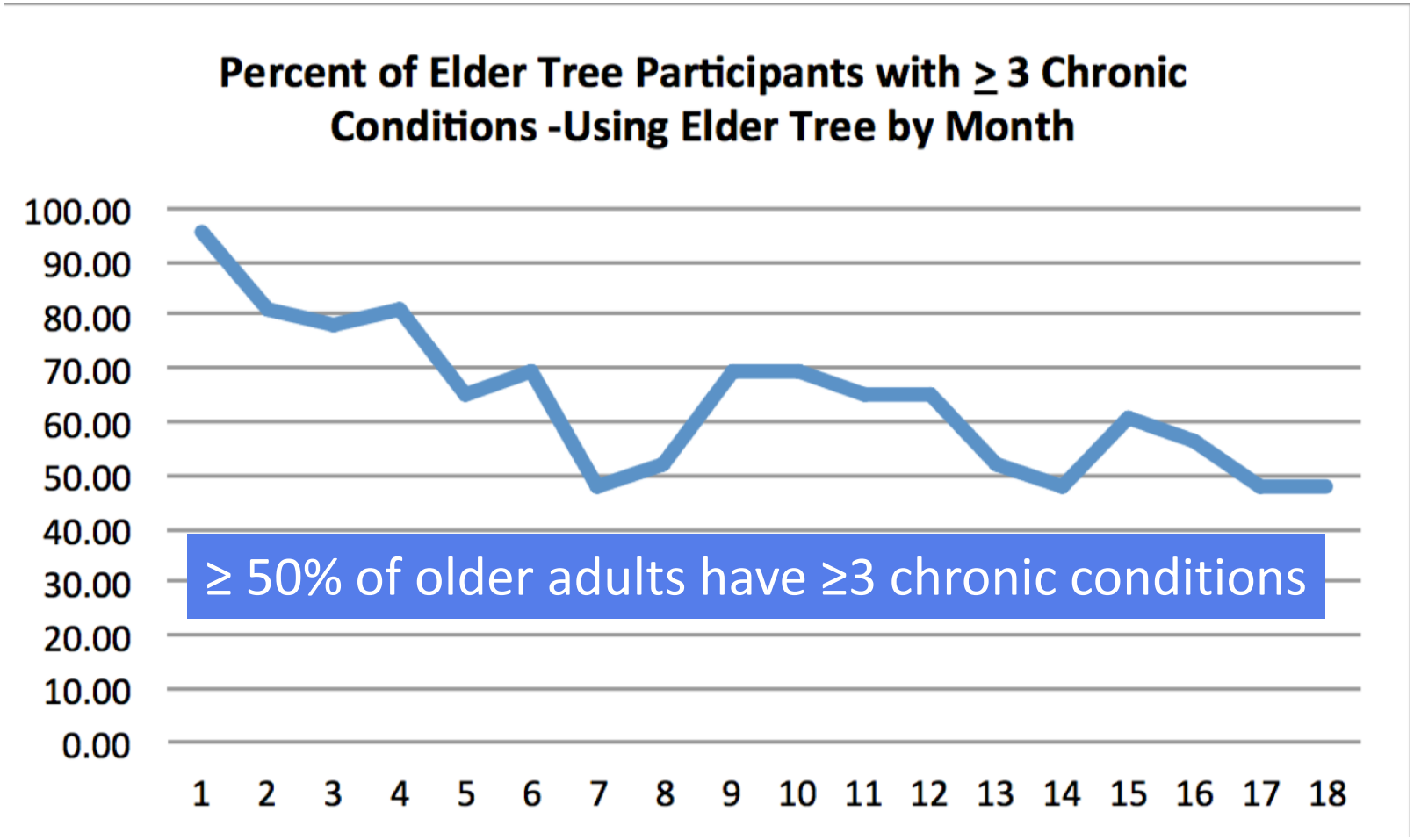


| | |
|---|---|
| Didn't Post: | 17.1% |
| Low: | 7.7% |
| Medium: | 6.1% |
| Super Posters: | **34.6%** |

# Have Someone to Love and Make You Feel Wanted (most of the time)

| | |
|---|---|
| Didn't Post: | 52.8% |
| Low Posters: | 55.3% |
| Medium Posters: | **24.1%** |
| Super Posters: | **26.9%** |

# Elder Tree Statistics



# Impact

Compiled by Klaren Pe-Romasko
Analysis by Rachel Kornfield and Juwon Hwang

# No Effect Overall

## No effect overall!

**Then we did a moderator analysis.**

**Gender: No**
**Age: No**
**Number of primary care visits: Yes**

# Outcomes and p Values
# n = 306/390 – (78%)

- Quality of life p = .043
- Bonding p = .007
- Depression p = .023
- Falls risk p = .028
- Driving risk NS

Who are these high primary care users?

# Effect Sizes

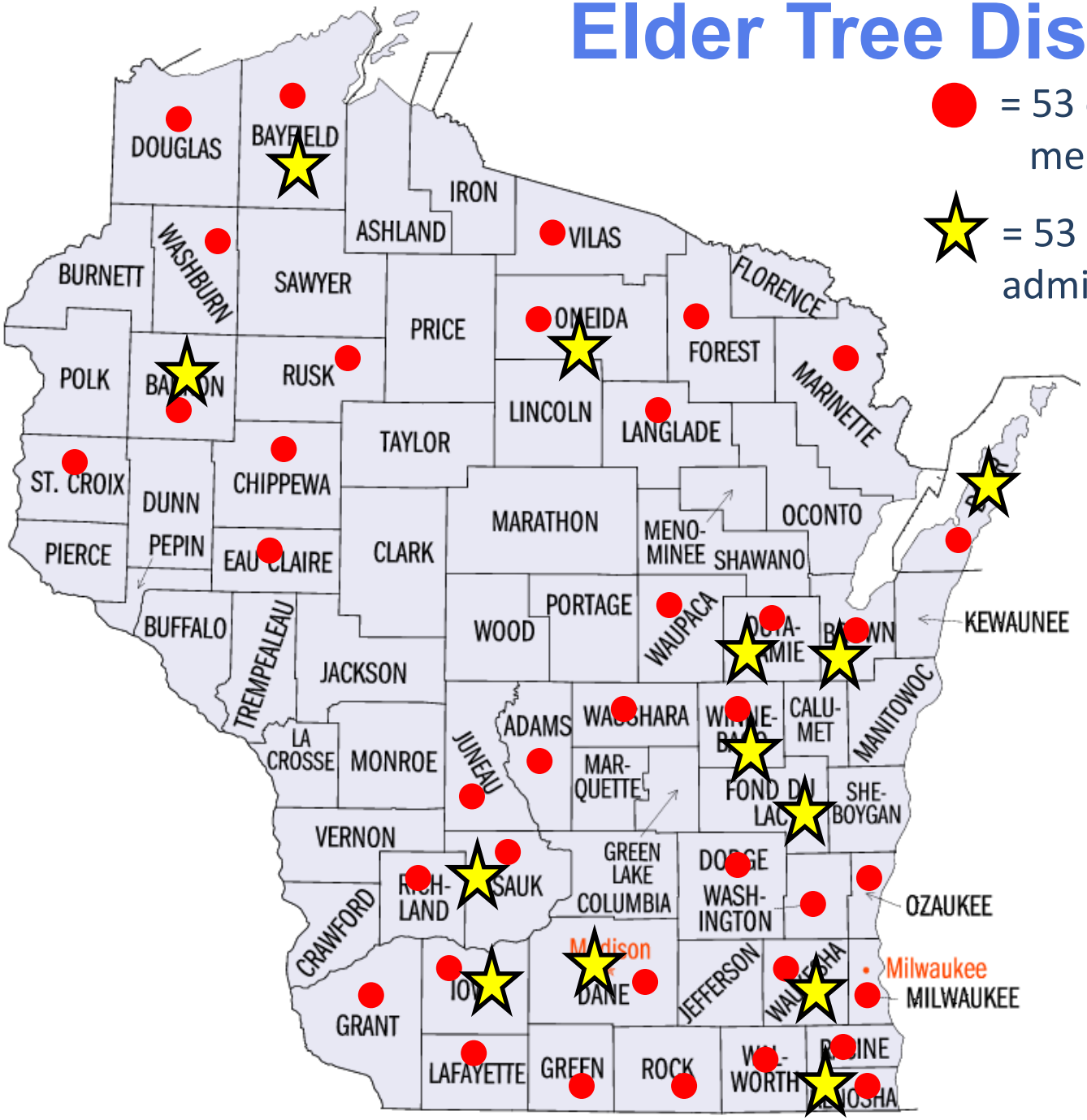
## Effect Sizes

(Outcome data still being collected)

| Chronic Condition Combinations | Sample Size | Quality of Life | More Support | Less Depressed | Less Symptom | Less HC Services |
|---|---|---|---|---|---|---|
| Obesity/BP/Lipids | 8/11 | .41 | .40 | .14 | .66 | .52 |
| Arthritis/BP/Lipids | 17/20 | .18 | .22 | .07 | .38 | .38 |
| Pain/BP/Arthritis | 21/18 | .44 | .25 | .32 | .82 | .12 |
| All of the Above | 29/29 | .26 | .27 | .16 | .52 | .42 |

# Dissemination

# Elder Tree Dissemination



# Elder Tree Community Administrators

## What's the purpose of Elder Tree *Community Administrators?*

- An Elder Tree **champion** in the community
- Trained and given **admin rights** to activate new users and create custom groups
- They provide a human touch to the technology

## Who are they?

- Senior center directors
- Librarians
- Aging professionals
- Church secretaries
- Civic group volunteers
- Social workers
- Meal program staff & volunteers
- Older adult volunteers

# Next Steps

- Multiple chronic conditions
- Link to clinical team
- American Family – no advertising still
  - Provide Chromebooks and hotspots
  - Agent give ET to customers
  - IL, MN, IA, and WI
- United Healthcare????
  - Dual eligibles
  - WI, OH, AZ, TX, and KS

# What Have We Learned?

- Volunteers are great; be clear on expectations.
- Focusing on assets can be very helpful.
- ABCD & research have different agendas.
- Deeply understand your customer.
- Link to the health care system.
- Communication is key.

# Contact Information

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# Leveraging Private Social Networks for the Care of Elderly Patients

**Charles Safran, M.D.**

Chief, Division of Clinical Informatics,
Beth Israel Deaconess Medical Center

Professor of Medicine,
Harvard Medical School

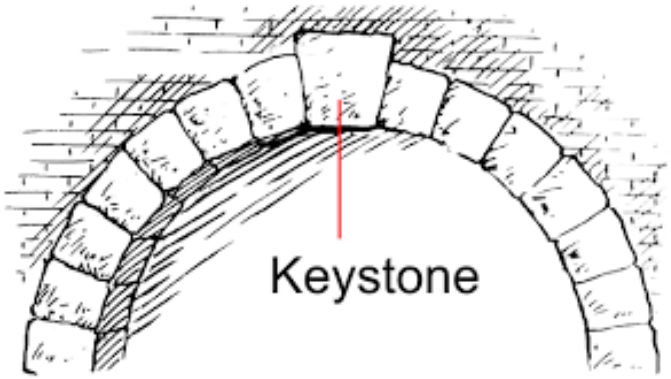
# Learning Objectives

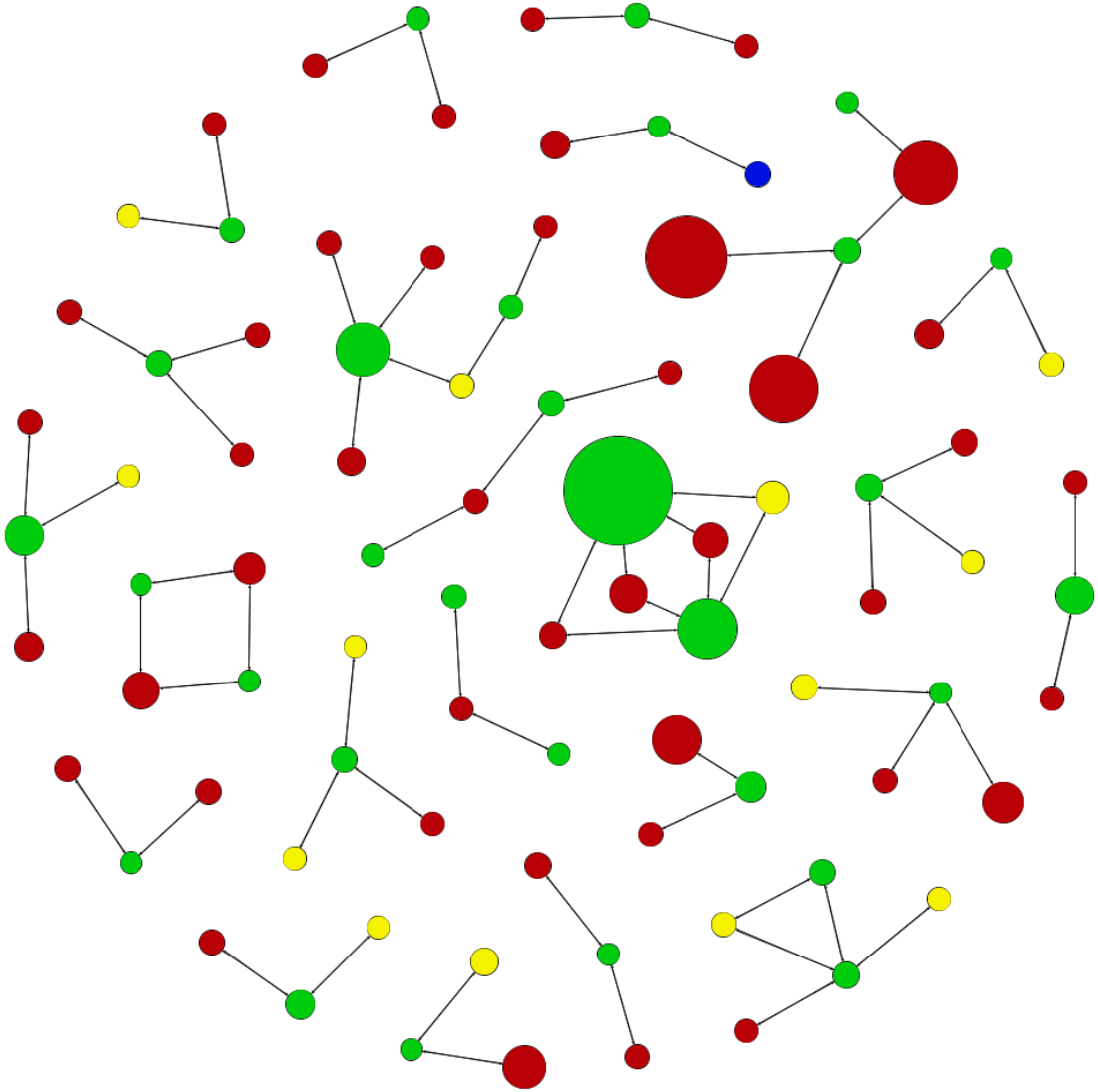
- Recognize the unique challenges of care coordination for elders and their families.
- Describe how clinical informatics can be used to improve communication, coordination, and collaboration in the care of elders.
- Discuss strategies for the use of smartphones in community-based care.

- InfoSAGE provides families with a *private social network* to help them care for aging family members.
- InfoSAGE users comprise a *living laboratory* to study family-centered tools designed to enhance care coordination and improve medication safety.

# Networks of Families

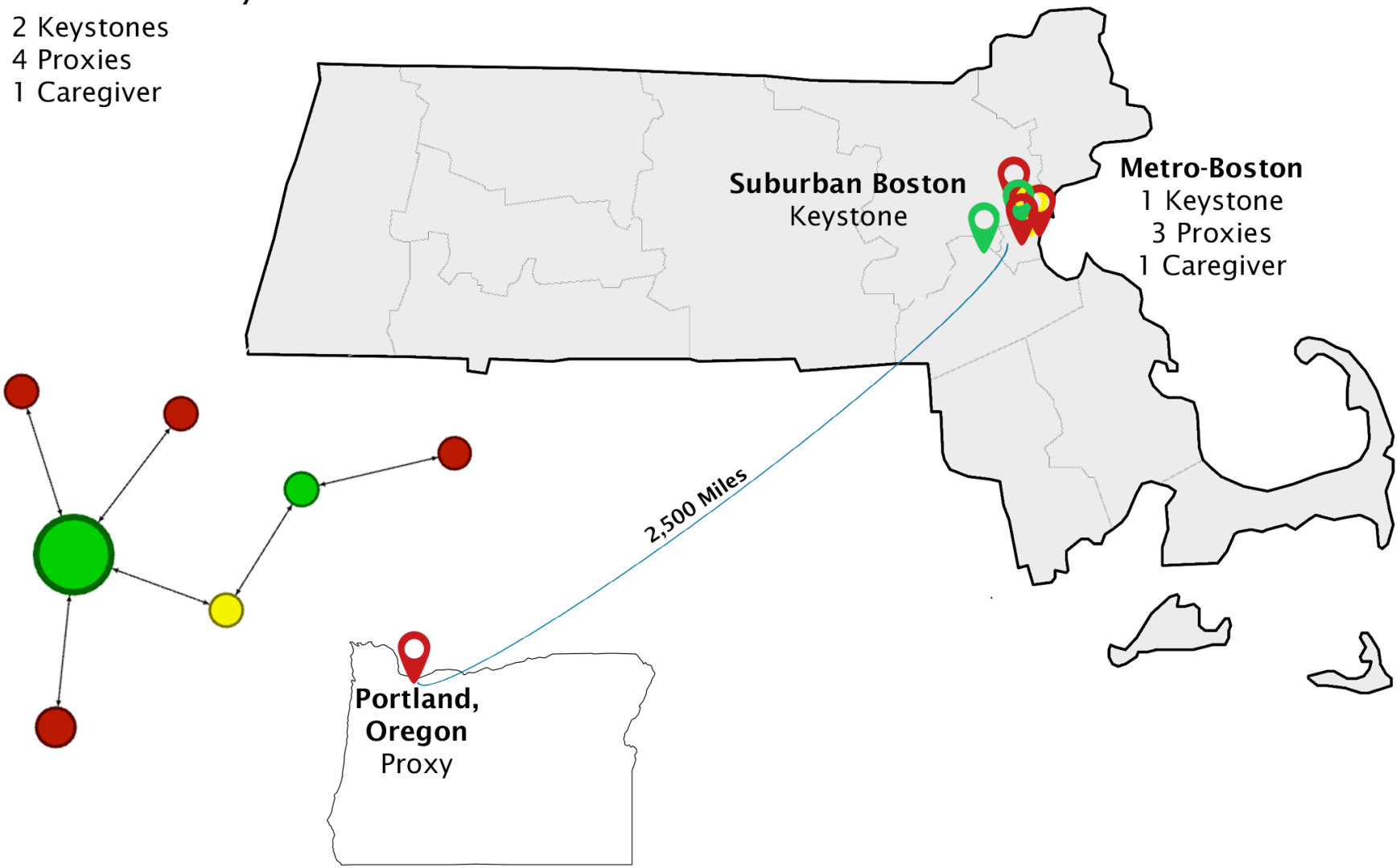
- Keystone
- Proxy
- Caregiver
- Participant



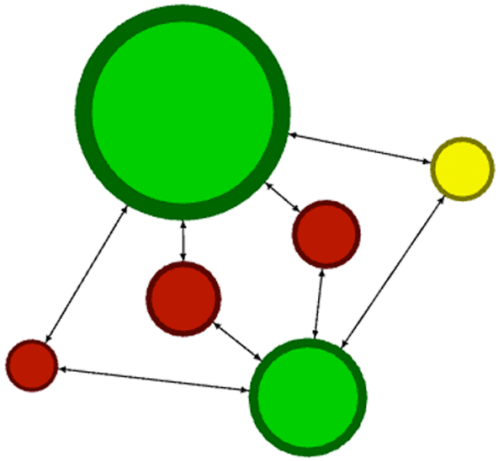
**A Boston Area Family**

2 Keystones
4 Proxies
1 Caregiver



## A Californian Family

2 Keystones
3 Proxies
1 Caregiver



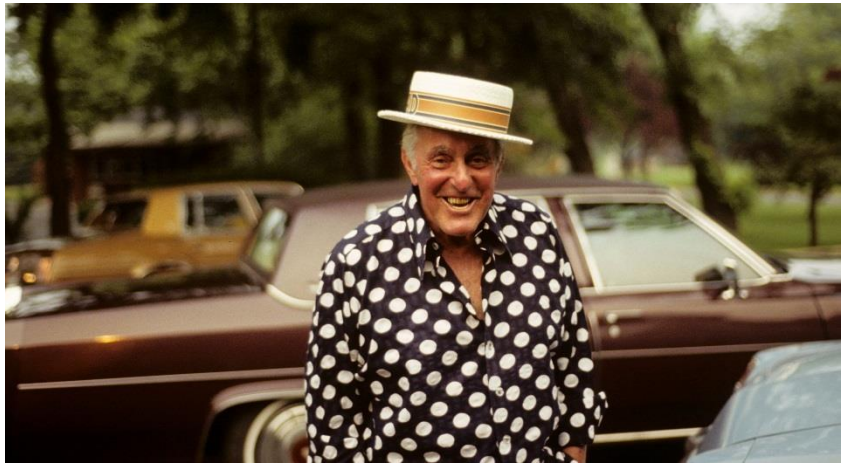
# Outline

- The Problem
- The Design
- Early Findings
- Reflections

# The Problem

Aging creates health care decisionmaking, information management, and communication challenges for elders and their families.

Care coordination is exceptionally challenging.



Respecting the elder's preferences and priorities is often lost in transition.

# Case

AB is a 94 yo WF admitted 5/1/15 with altered MS and FTT.

HPI Seen in Geriatric practice (on a Friday afternoon) and noticed to be hypertensive and noticeably weaker than previous visit and sent to EW.

Increasing fatigue 2w, decreased appetite, difficulty ambulating.

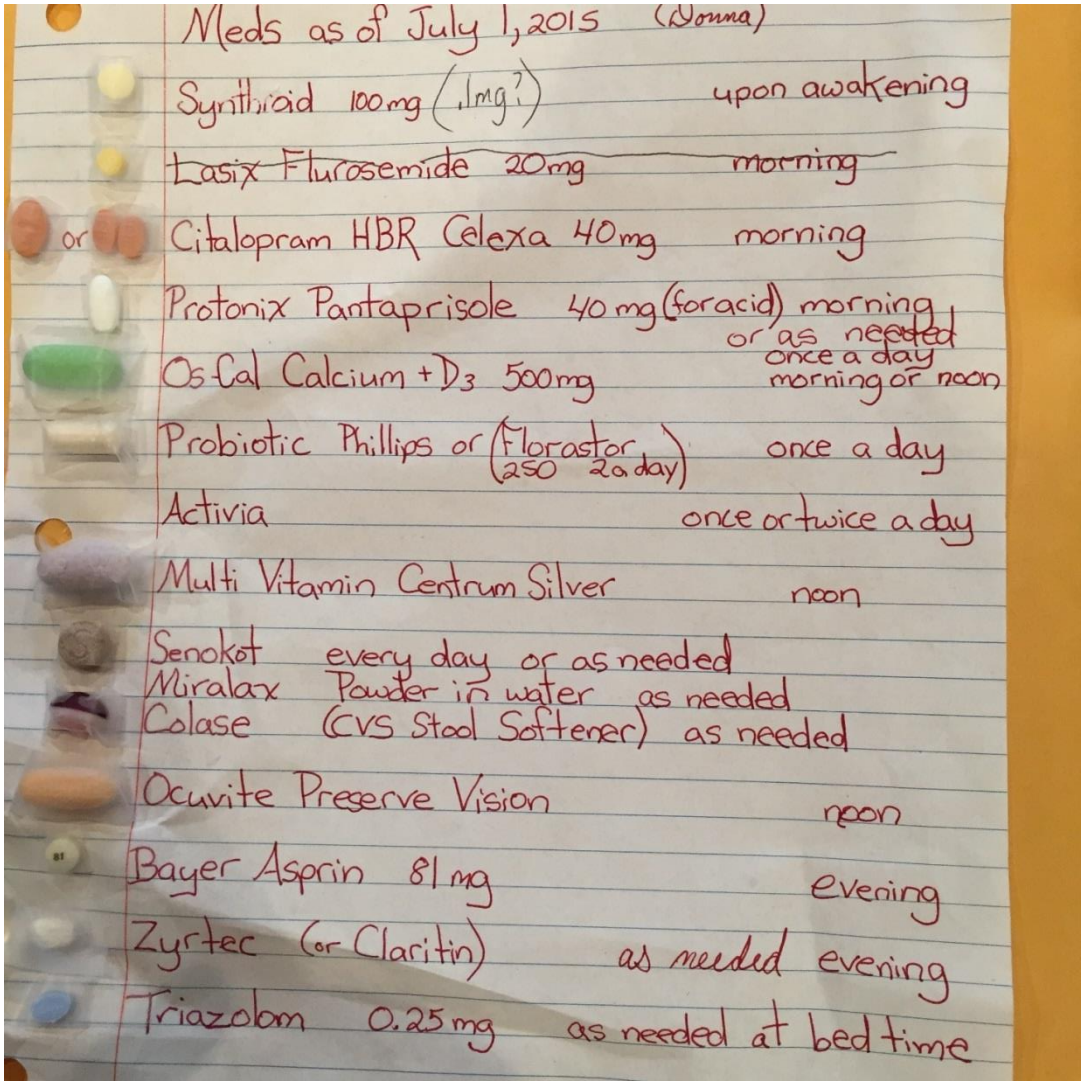
Recurrent falls without headstrike. No abd pain or dysuria.

Soc Hx Widow, lives at home with 24/7 care. Daughters actively involved.

# Medications on Admission

1. Fosamax (Alendronate Sodium) 35 mg PO QSUN
2. Atorvastatin 40 mg PO QPM
3. Celexa (Citalopram) 40 mg PO QD
4. Estrogens Conjugated 1 gm VG 2X/WEEK (SU, WE)
5. Desmopressin Acetate 0.2–0.4 mg PO QHS
6. Levothyroxine Sodium 100 mcg PO QD
7. Ascorbic Acid 1000 mg PO QD
8. Aspirin 81 mg PO QD
9. Zyrtec (Cetirizine) 10 mg PO QD
10. PreserVision Lutein
    (vit C-vit E-copper-ZnOx-Lutein) 226-200-5-0.8 mg-unit-mg-mg PO QD
11. Calcium Carbonate 1600 mg QHS
12. Probiotic Formula (bacillus coagulans-inulin) 1 billion-250 cell – mg PO BID
13. Senna 8.6 mg PO QD
14. Vitamin A dose unknown QD
15. Vitamin E dose unknown QD

# Home Medication List



# The Challenge

- Poor communication, coordination, and collaboration with care system.
- Community resources fragmented.
- Burden on children can become part-time job.
- Cognitive and physical function wax and wane.
- Demographics create a worldwide imperative!

# Elders' Use of Technology

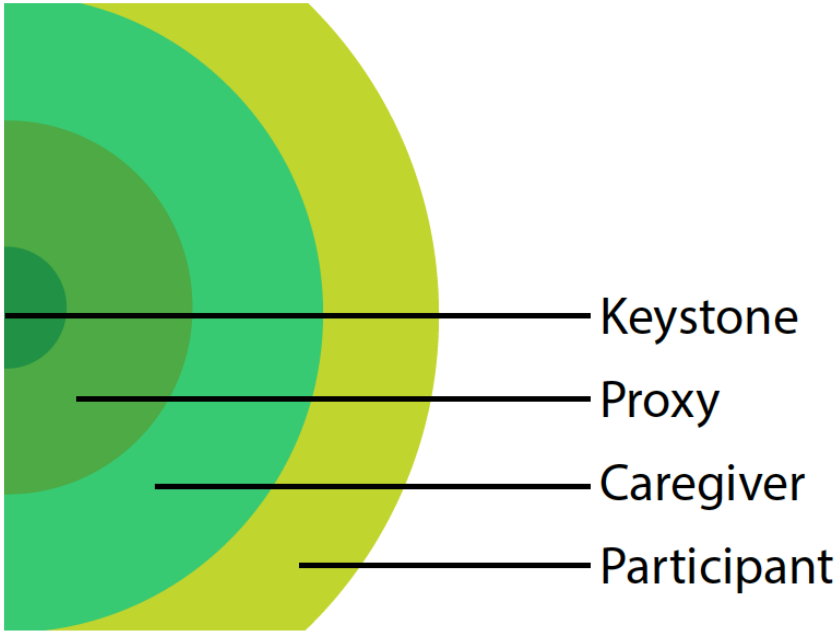
| | Internet Use | Broadband | Smart Phone | Social Media |
|---|---|---|---|---|
| 65-69 (n=531) | 74 | 65 | 29 | 54 |
| 70-74 (n=401) | 68 | 55 | 21 | 42 |
| 75-79 (n=244) | 47 | 34 | 10 | 46 |
| 80+ (n=360) | 37 | 21 | 5 | 27 |

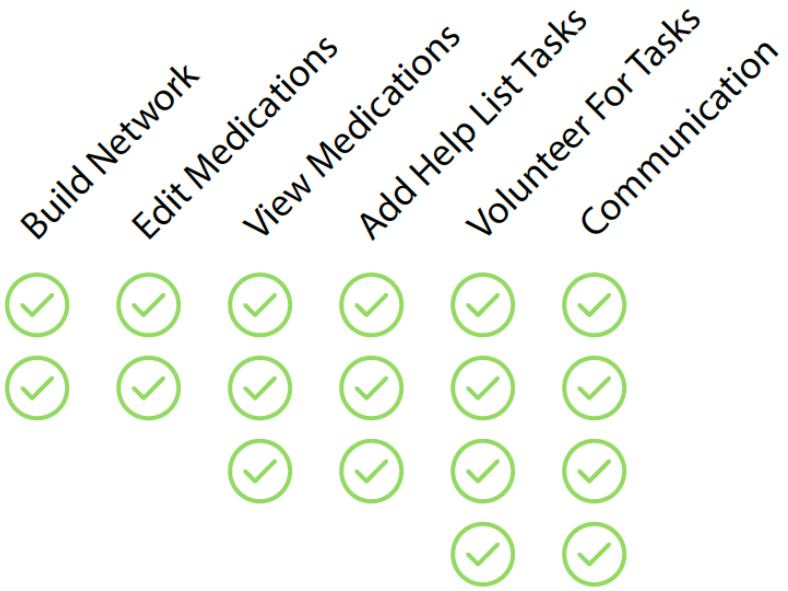
*Pew Research Center, April 2014*

# Design of InfoSAGE™

- User
  - Keystone
  - Family
  - Both
- Intuitive
- Building network around Keystone
- Control and confidentiality
- Online recruitment into clinical trial

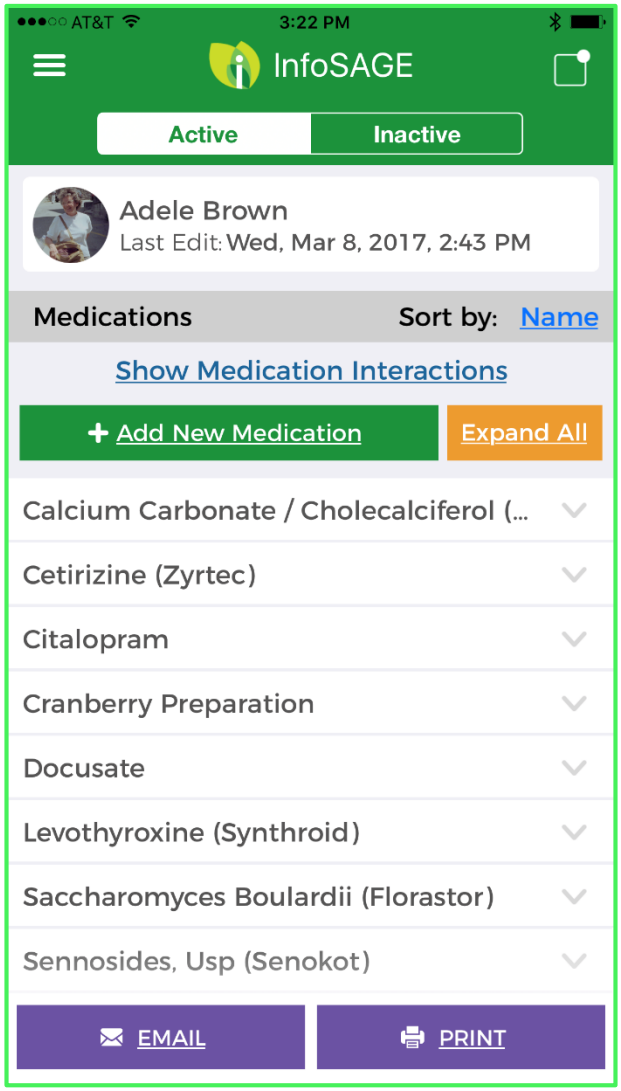
# Design of

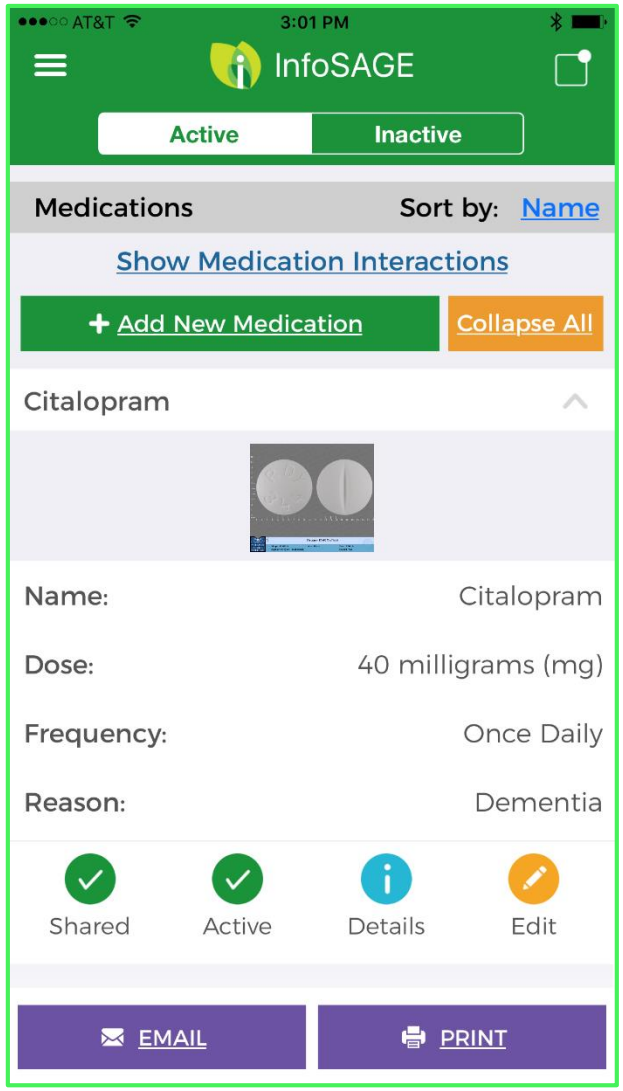


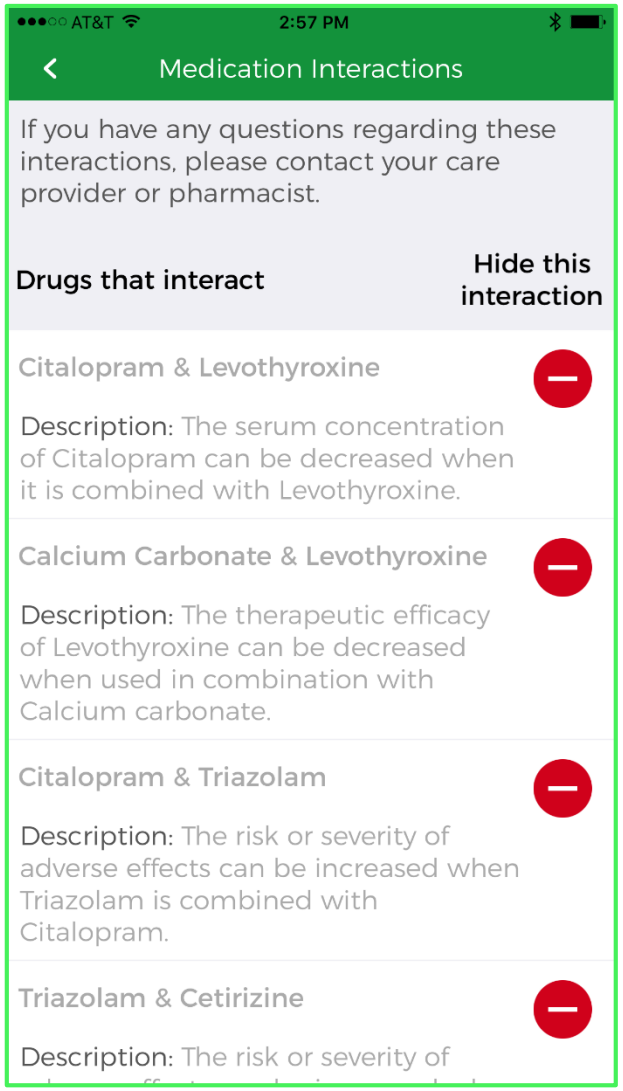




**InfoSAGEHealth.org**

# Cloud-based Medication List



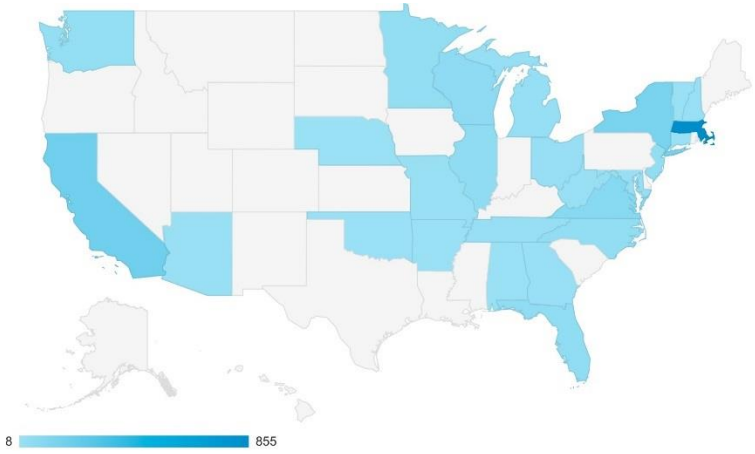



# InfoSAGE™ Use

Jan 2015 thru June 2017

| | Sessions | Users | Pages | Duration (min) |
|---|---|---|---|---|
| Total USA | 1,787 | 1,162 | 6.0 | 5:39 |
| Massachusetts | 857 | 434 | 8.4 | 8:58 |
| California | 181 | 158 | 3.5 | 2:43 |
| New York | 143 | 107 | 2.8 | 2:23 |
| Virginia | 91 | 75 | 4.3 | 1:15 |
| Wisconsin | 65 | 38 | 7.2 | 7:03 |
| Illinois | 60 | 49 | 2.1 | 1:04 |
| Florida | 48 | 43 | 3.4 | 2:07 |
| Minnesota | 39 | 24 | 4.7 | 4:00 |
| North Carolina | 39 | 35 | 3.2 | 3:04 |
| New Jersey | 37 | 32 | 3.7 | 0:56 |



# Key Observations

- Elders and their families in this study were able to use advanced technologies to create an online network, add medications and messages.
- Families' networks have formed that include spouses, children, grandchildren, and caregivers.
- Enrolled families are also geographically spread out, ranging from different neighborhoods within a city to spread out across the country.
- Our results show promising opportunities for more advanced online care coordination for elders and their families.

# Summary

- InfoSage is a private social network for family-based and community-centric care.
- Families are geographically dispersed
- While designed to support the care of fail elderly, also works for families where loved-ones have diabetes, cancer, or other high impact chronic illness.

# Acknowledgments

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LASELL VILLAGE

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David Skerry
Lew Lipsitz
Jason Rightmeyer
Eran Metzger
Elizabeth Howard
Dee Engorn

DIVISION OF CLINICAL INFORMATICS™

An Academic Division of the Dept of Medicine
at Harvard Medical Faculty Physicians at BIDMC, Inc.

InfoSAGE™

Information Sharing Across Generations

www.infosagehealth.org

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# Virtualized Homes: Tools for Better Discharge Planning

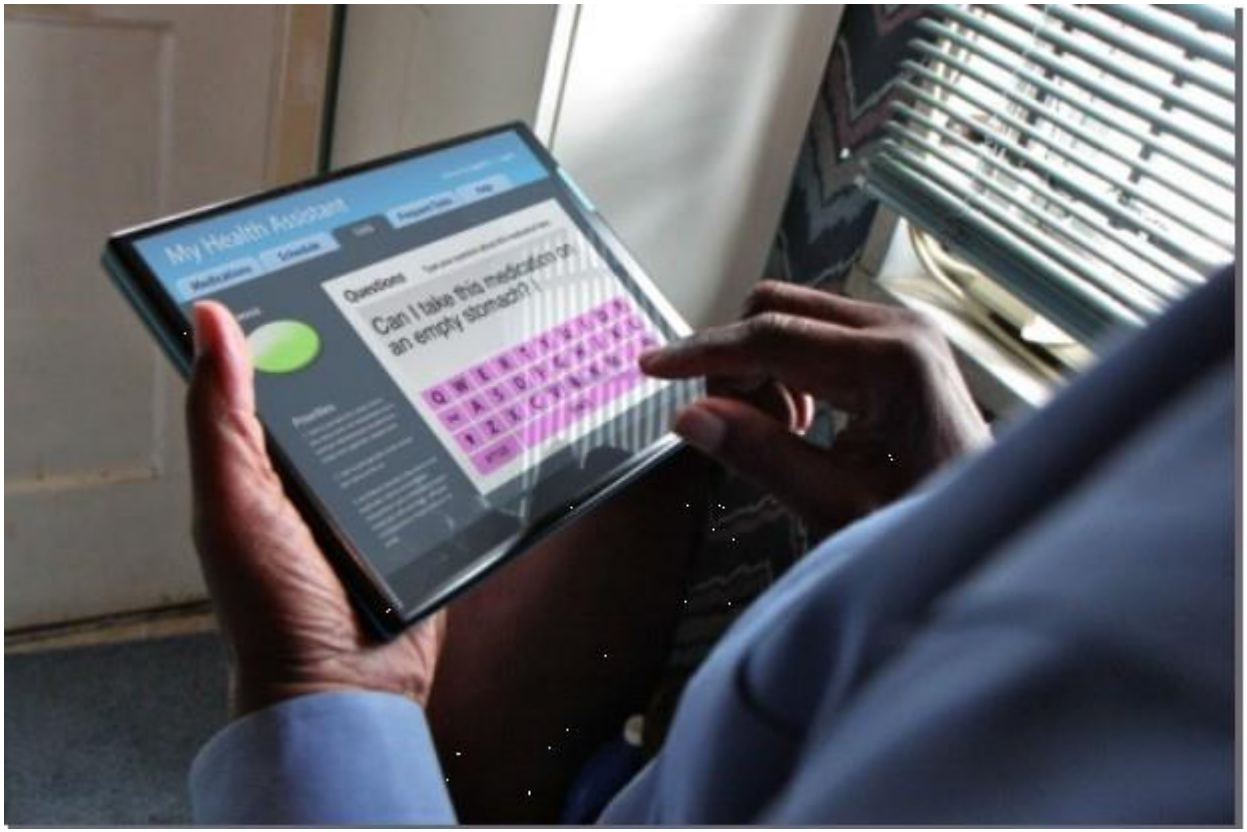
**Kevin Ponto, Ph.D.**

**Eneida Mendonca, M.D., Ph.D.**

University of Wisconsin-Madison

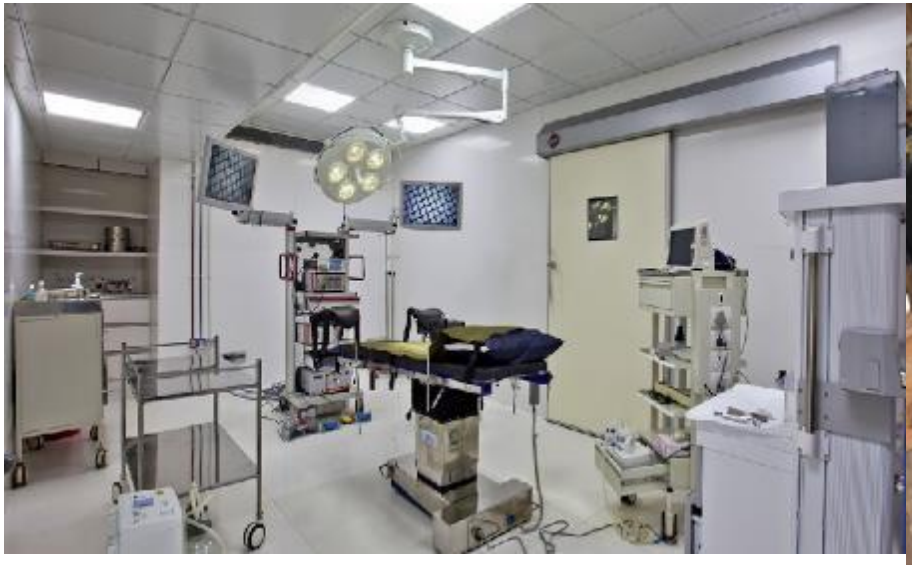
# History

## Project health design



# History

## Context of home environment



Hospital environment

Home environment

# History

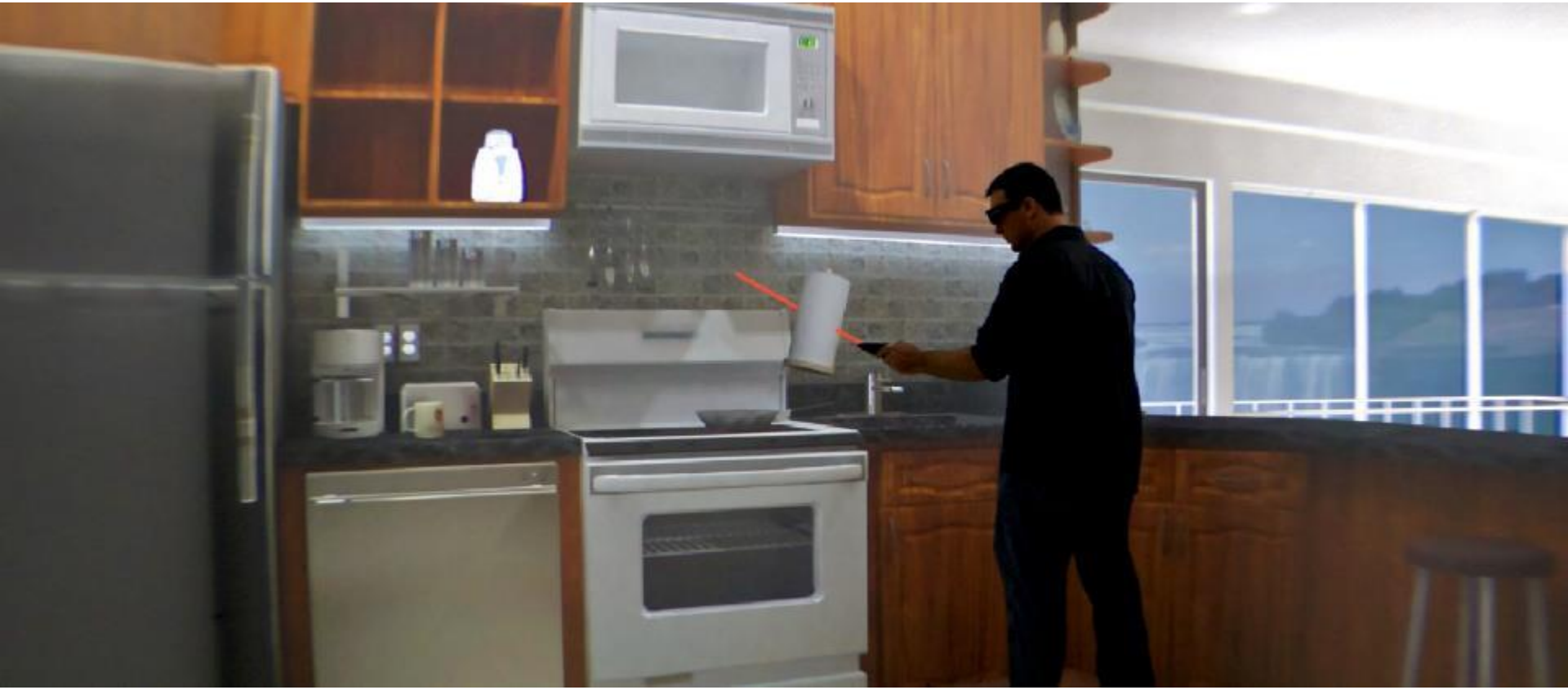
AHRQ R01 vizHOME Project

# History

## Virtual reality

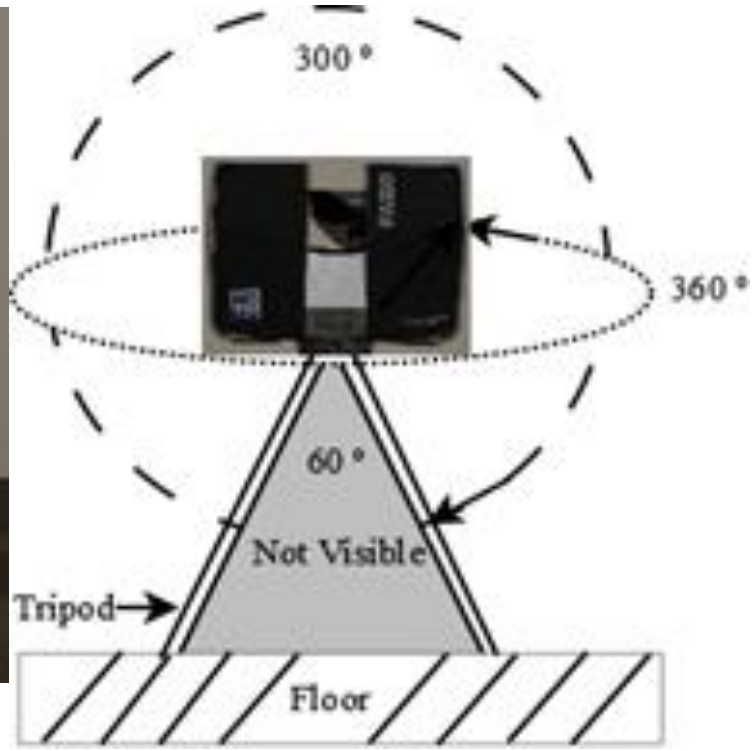
# History

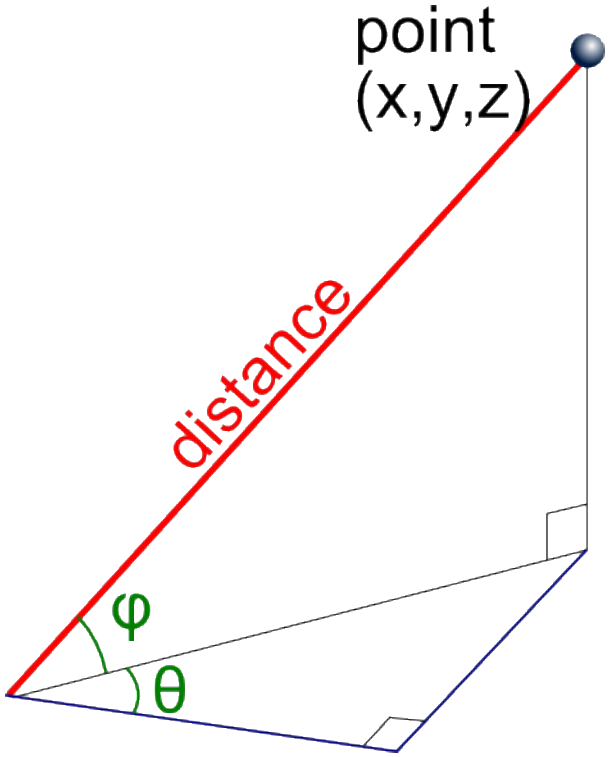
Simulated virtual environments



# History

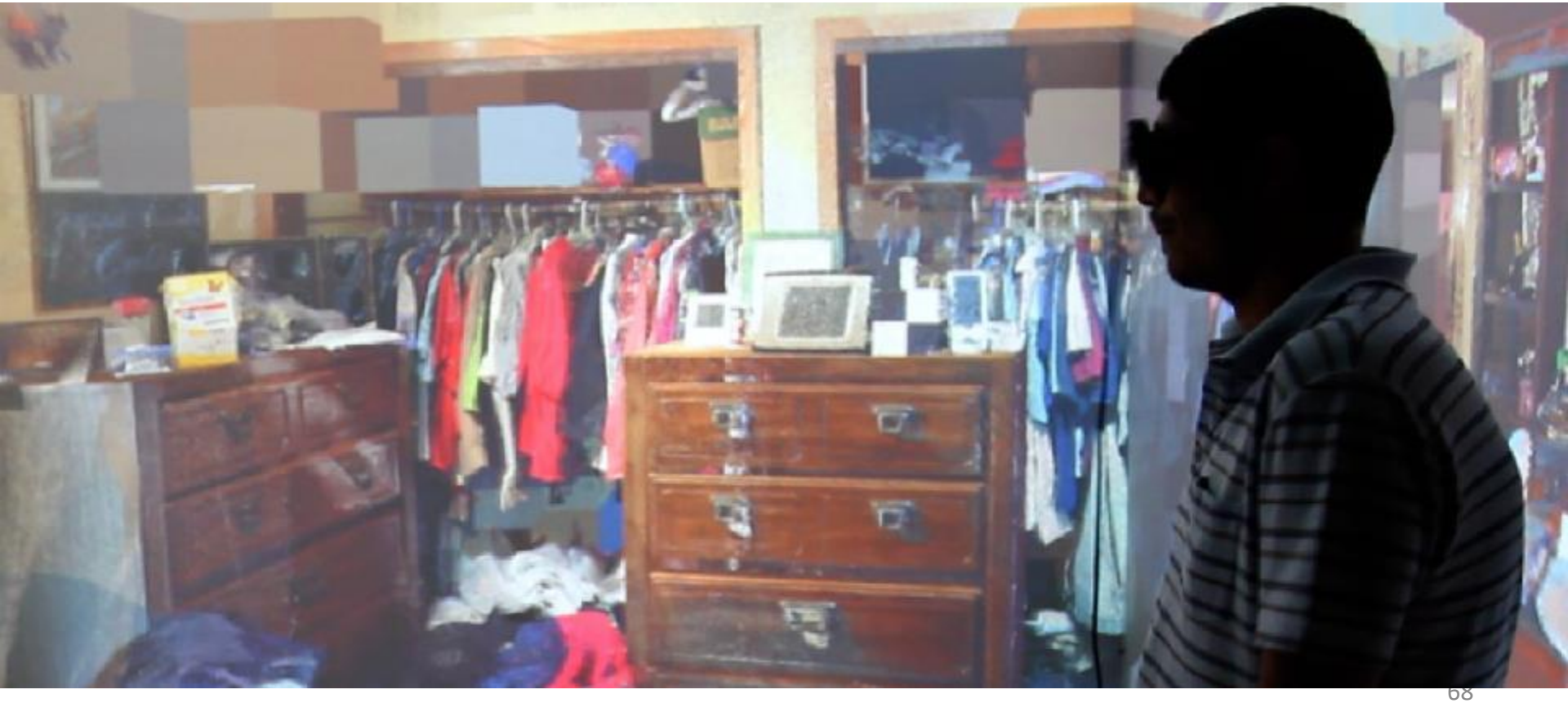
## 3D capture technology



# History

## Virtual reality visualization

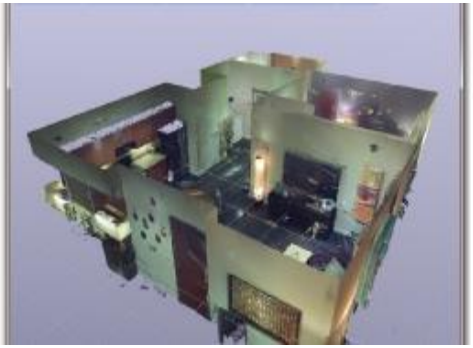


# Subsequent Research

Crime scene investigation

Cultural heritage

Discharge planning

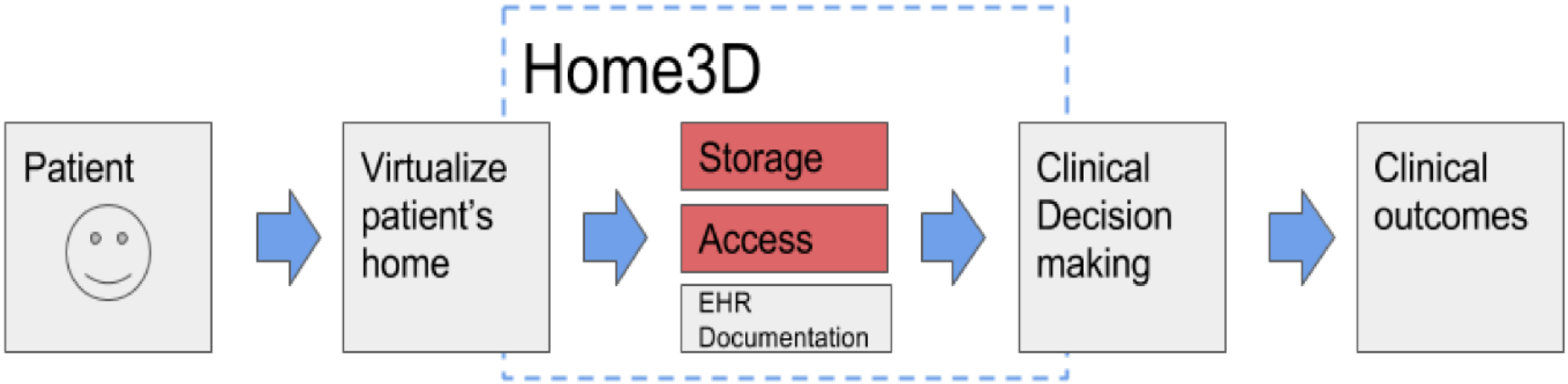


# Virtualized Homes

AHRQ R03HS024623 - Home 3D

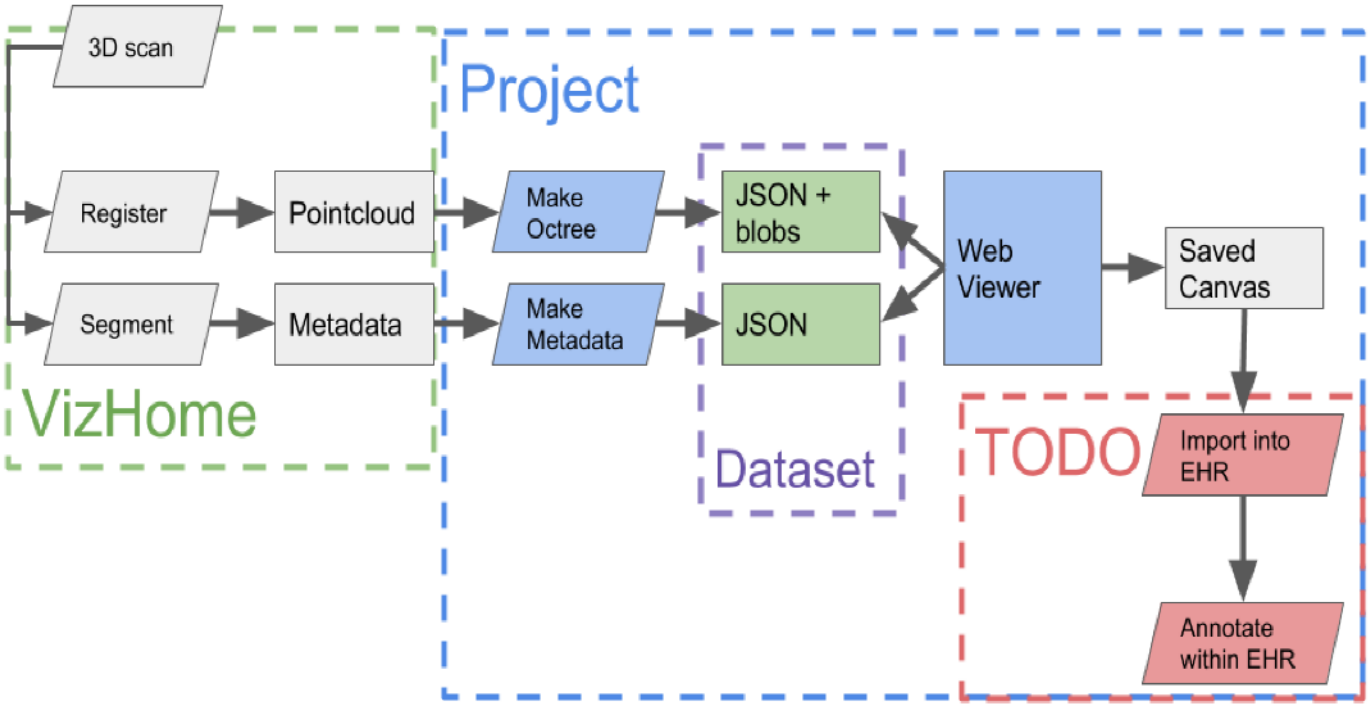
# Virtualized Homes

Extends the VizHome project by providing access to capture point cloud data to health care professionals through EHR implementations.

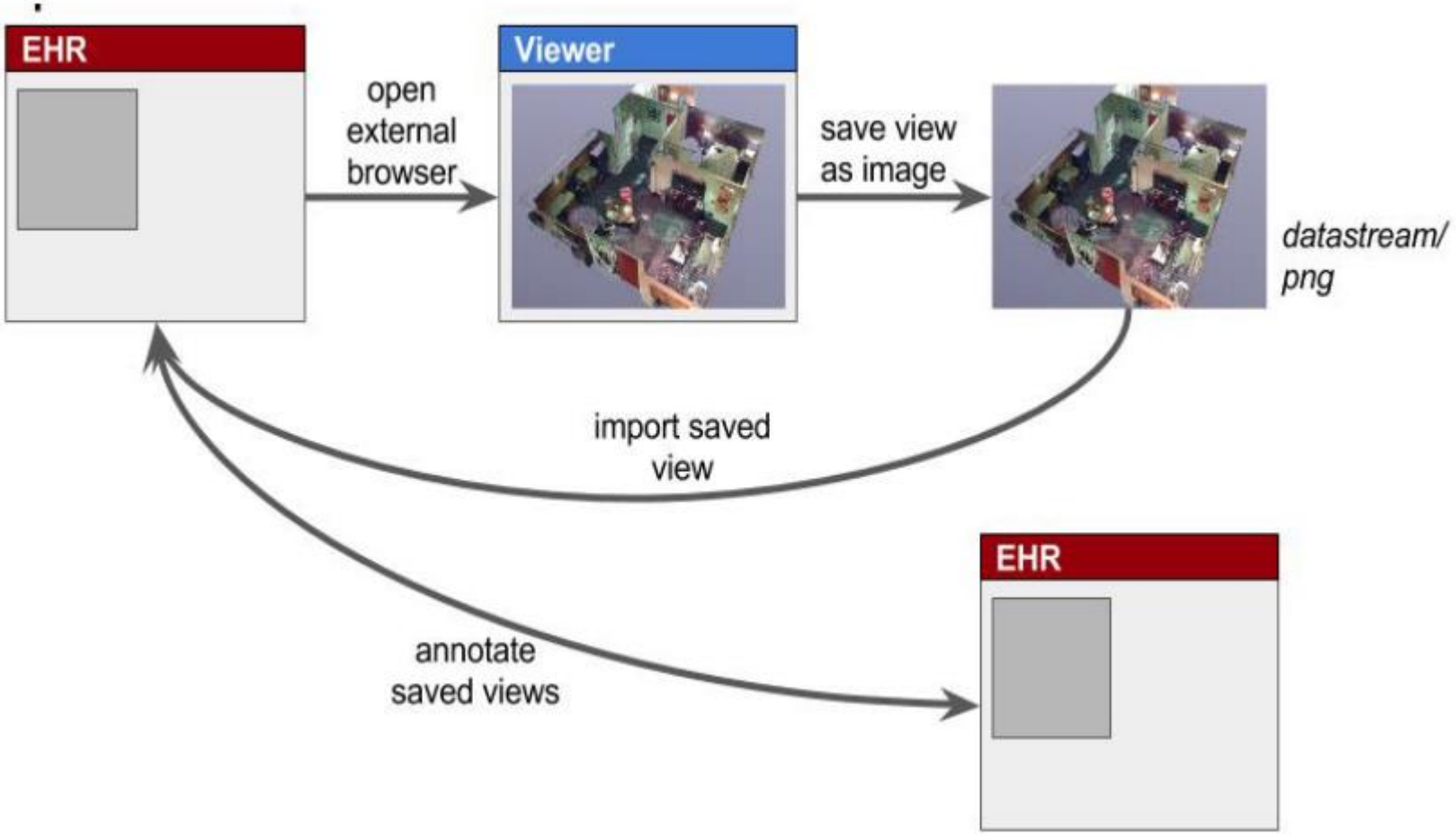


# Virtualized Homes: Data Flow

We create, process, and store both 3D point cloud data as well as textual metadata, based on the Getty Art & Architecture Thesaurus to describe home environment.



# Virtualized Homes: EHR Integration



# Virtualized Homes: Focus Groups

"… You know, many times people get sent home with a walker, and it gets parked outside the front door because the pathways are literally 12 inches wide to go anywhere, so there's no feasible way a walker would fit through there. But a patient doesn't tell you that in the inpatient setting. But in that case, you know, in the hospital, maybe we'd better be practicing with canes to see if they can get through. You know, those would be nice things to know on the front end."

# Virtualized Homes: Focus Groups

"… You know, I feel like in, again, on the inpatient basis, we do home safety education. We talk about, you know, if you have any throw rugs, let's get those up. … I feel like that might help some of the education piece stick a little bit more."

# Contact Information

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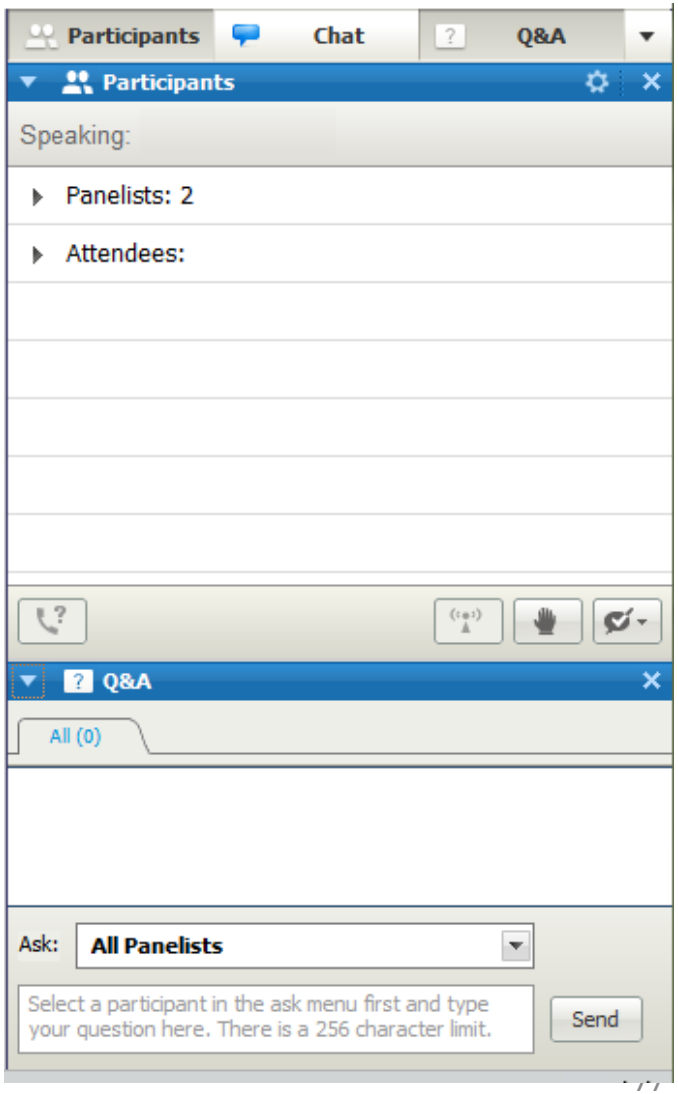
# How to Submit a Question

- At any time during the presentation, type your question into the “Q&A” section of your WebEx Q&A panel.
- Please address your questions to “All Panelists” in the drop-down menu.
- Select “Send” to submit your question to the moderator.
- Questions will be read aloud by the moderator.



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